

(19) **Federal Republic
of Germany**

**German
Patent Office**

(12) **Laid Open Document**
(11) **DE 32 34 556 A1**

(51) Int Cl.³:
B 65 C 9/18

(21) File number: P 32 34 556.9
(22) Date of application: 17. 9.1982
(43) Date of publication 10.5.1984

(71) Applicant:
Lesch, Hans-Bernd, Dipl.-Ing., 8000
Munich, DE

(72) Inventor
Karl, Gerhard, Dipl.-Phus., 8702
Himmelstadt, DE

(54) Labeling machine for preparing and applying labels on packages or similar items

Labeling machines for preparing and applying labels on packages, packed pieces or similar items, should take off labels as a continuous web from a supply roll, separate the labels and apply them with a feeding configuration onto packages moving past without having extensive configurations or specially prepared labels be necessary and without a number of delivery belts, carrier belts or similar items being necessary. This is achieved in that the feeding configuration is created from at least two conveyor chains (10) that are synchronic, turn in the same direction and are parallel to each other, these conveyor chains run over guiding elements (15) and have label gripping devices (16) that are operated by controlling elements, the feeding configuration is also created from a pick up arrangement (11) with grabbing nippers that swing out in the conveyor path, the conveyor chains (10) run in the grabbing nippers where then the label gripping devices (16) take hold of the labels which are to be separated from the supply roll (1) and to be transferred to the grabbing nippers of the pick up arrangement (11) which presses the labels (13) onto the packed pieces (12) or similar items that are moving by.

Labeling machine for preparing and applying labels on packages or similar items

Patent claims

1. Labeling machine for preparing and applying labels on packages, said labels are removed from a supply roll, separated and are applied through a feeding configuration to packages or similar items that move by, is characterized in that the feeding configuration is created from at least two conveyor chains (10) that are synchronic, turn in the same direction and are parallel to each other, these conveyor chains run over guiding elements (15) and have label gripping devices (16) that are operated by controlling elements, the feeding configuration is also created from a pick up arrangement (11) with a grabbing nippers that swings out in the conveyor path, the conveyor chains (10) run in the grabbing nippers where then the label gripping devices (16) take hold of the labels which are to be separated from the supply roll (1) and to be transferred to the grabbing nippers of the pick up arrangement (11) which presses the labels (13) onto the packed pieces (12) or similar items that are moving by.
2. Configuration according to claim 1 is characterized in that between the supply roll (1) and the pick up arrangement (11), along the conveying path for the labels (13) to be passed through, are provided a separation arrangement (6) for the labels, just as a gluing arrangement (7) and if need be a pressing arrangement (4) for the labels (13).
3. Configuration according to claim 1 and 2 is characterized in that the conveyor chains (10) can be adjusted in their mutual separation corresponding to the width of the labels.
4. Configuration according to claims 1-4 is characterized in that for the purpose of putting on several labels simultaneously, several conveyor chain pairs are arranged next to each other in a conveyor path.
5. Configuration according to claim 1-4 is characterized in that the conveyor nipper (11) is arranged between the conveyor chains (10).
6. Configuration according to claim 5 is characterized in that the upper part and the lower part of the grabbing nippers (11) are created by fingers (20, 21) that lie on the same axis (22, 23) and are separated from each other and the finger axes (22, 23) lie in a control mechanism (24, 25) that actuates the opening and closing, just as the swaying of the nippers, where the individual fingers (20, 21) can be adjusted in their separation from each other corresponding to the arrangement of the adhesive strips of the label (13).
7. Configuration according to claim 6 is characterized in that in the upper part of the nippers (11) at the front end of the finger (20) a pressing roll (27) is placed for the label (13) to be adhesively applied.
8. Configuration according to claim 2 is characterized in that the gluing arrangement is made up of adhesive-applying disks (9) that are separated on a mutual axis (19) by the separation of the adhesive strips of the label, on the one hand said disks dip into an adhesive container (8) and on the other hand roll on the back side of the corresponding label (13) being fed past and said disks can be adjusted in their mutual separation or changed out, corresponding to the desired adhesive strip arrangement.
9. Configuration according to claim 1 is characterized in that the label gripping devices (16) have gripping bits that extend out of the region of the conveyor chain elements, said gripping bits take hold of the corresponding label (13) at the edge and holds the label in a self-supporting manner.

Labeling machine for preparing and applying labels on packages or similar items

The invention is concerned with a labeling machine for preparing and applying labels on packages or similar items. Typically, such labels are provided in a certain size and with the suited designations and are adhesively applied to the packages. For set-ups, such as those described in the German document DE/OS 25 29 872, one begins with a label stack, from which the previously printed labels are removed one after another, glue is applied and then they are adhesively applied to the corresponding parcel. The necessary configurations for this here are costly and susceptible to troubles, furthermore such set-ups necessitate previously finished printed labels. On the other hand, set-ups have also become known in the art through the German patents DE-PS 19 27 163 or DE/AS 20 08 187, for which also already previously prepared labels are adhesively applied through the aid of a permanent adhesive in back of one another on the conveyor belt, the conveyor belt then moves to the corresponding processing places in which the labels are removed from the conveyor belt and are applied to the corresponding parcel. Such set-ups are also very costly, above all they require the previous application of already prepared labels onto the conveyor belt, which then becomes waste after the removal of the labels.

The objective of the invention is to alleviate the shortcomings of the described set-ups and to create a labeling machine for preparing and applying labels, in which the labels, as a continuous web from a supply roll, are removed, separated and are applied through a feeding configuration onto packages or similar items that are moving past, without having extensive configurations or specially prepared labels be necessary and without a number of delivery belts, carrier belts or similar items be necessary. This is inventively achieved in that the feeding configuration is created from at least two conveyor chains that are synchronic, turn in the same direction and are parallel to each other, these conveyor chains run over guiding elements and have label gripping devices that are operated by controlling elements, the feeding configuration is also created from a pick up arrangement with a grabbing nipper that swings out in the conveyor path, the conveyor chains run in the grabbing nipper where then the label gripping devices take hold of the labels which are to be separated from the supply roll and to be transferred to the grabbing nipper of the pick up arrangement which presses the labels onto the packed pieces or similar items that are moving by.

Preferably, between the supply roll and the pick-up arrangement, along the conveying path for the labels to be passed through, are provided a separation arrangement for the labels, just as a gluing arrangement and if need be a pressing arrangement for the labels. Expediently, the conveyor chains can be adjusted in their mutual separation corresponding to the size of the labels, or respectively, the width of the labels.

Therefore, every prior manufacturing of individual labels, just as their laborious stacking or the use of conveyor belts upon which the labels are already previously adhesively applied can be done away with.

An additional advantage of the invention exists in that for the purpose of simultaneous application, several label pairs can be arranged in one conveying path next to each other. Because of this and that inventively the grabbing nipper for the label is arranged between the conveying chains, the possibility is created to be able to apply labels on parcels that are equipped with a circularly projecting out edge which restricts the use of the typical feeding configurations or adhesive-application mechanisms.

Additional advantageous and inventive characteristics of the invention create the objective of the various attached patent claims. Besides, the objective of the invention permits the different embodiment possibilities, several of which are reported in the following drawings:

- Figure 1 shows a schematic representation of the labeling machine in a side view;
- Figure 2 shows a side view of the lower part of the copying machine in enlarged dimensions;
- Figure 3 and 4 show the pick-up arrangement provided at the lower end of the conveyor chains in various functional positions;
- Figure 5 shows a front view of the lower part of the machine;
- Figure 6 shows schematic representations of the lower part of the machine when using several conveyor chain pairs, for simultaneous processing of several labels and
- Figure 8 to 10 show individual representations of the gluing arrangement.

For the invented set-up a continuous paper strip is used that is unwound from a supply roll 1. The strip 2 is fed ahead in a step-wise manner by a sliding member 3 and passes through a printing set-up 4 of a known construction. The printed label strip is fed subsequently further through transport rolls 5 and reaches a rotating cutting configuration 6 which divides the strip into individual labels. Subsequently, the individual, separated labels are taken hold of by the gripping devices 16, which are separated from each other by the corresponding distance, and said devices sit on two conveyor chains 10 that run synchronically and are parallel to each other. The conveyor chains 10 run thus over guiding wheels and correspondingly drive wheels 15. Through the aid of the moving chain 10 and the gripping devices 16, the labels are led past a gluing arrangement 7, which is to be described later, where said gluing arrangement is generated by the adhesive-applying disks 9 and by the adhesive supply container 8. Finally the labels with glue already applied reach a pick-up arrangement 11, which will also be described later. Here the labels are released by the gripping devices 16 and taken hold of by a grabbing nipper that creates the pick up arrangement, said grabbing nipper presses the labels with the glue-coated side onto parcels 12 that are moving past underneath. With the help of a conveyor belt or on a transporting table 14, the labeled parcels 12 finally reach the following process station.

The label gripping devices are attached to the chains 10 with the separation from each other corresponding to the length of the labels to be processed. The control of the gripping devices 16 takes place through stationary cams 18, or correspondingly, through studs 17 that function together with the cams 18 and open or close the gripping device bits. The arrangement is reached in that the labels 13 are taken hold of on the front edge immediately behind the cutting arrangement by the gripping devices and are taken away in a self-supporting manner by the rotating chains. In this manner they run through the gluing station. The gluing station consists of a number of adhesive-applying disks 9 which are arranged on a common axis 19 with a separation from each other. These disks can be adjusted any way according to the arrangement of the adhesive-coated strips to be produced or they can also be completely removed from the axis 19.

After the adhesive application, the individual labels reach the already previously mentioned pick-up arrangement. This arrangement is indicated in Figure 1 with 11 and consists of an upper and lower part grabbing nipper which between the two conveyor chains 10 can swing out of the region of the conveyor chains, if the label 13 that is held by the gripping nipper should be applied onto the package 12.

The upper part, just as also the lower part of the nipper consists of fingers 20, and respectively, 21 that each sit separated from each other on a common axis 22, 23. The arrangement of the fingers on the axes 22 and correspondingly 23 is reached such that they function in the separation between the adhesive strips that are already coated on the label backside. For this, the Figures 3-5 should be compared. Opening and closing of the nipper and correspondingly swinging out of the nipper finger out of the conveyor chain region, is actuated through the axis 23 through the use of a control arm 25. On this axis 23 sits an arm 24 which on its free end carries the axis 22 upon which the fingers 20 of the nipper upper part are attached. In an extension 26 of the outer-lying finger 20 is located a pressing roll 27 which presses the label 13 on the package 12 when the nipper swings down. Of special importance here is that the fingers 20 and correspondingly 21 function between the conveyor chains 10 so that it is possible to also perform the labeling in a depression of the package which was excluded in previous labeling machines known in the art. Thus upright standing frames 14' can also be provided on the conveyor table 14 for the packages, said frames extend above the package 12 and leads the package along the correct path (Figure 5).

Obviously, the movements of the nipper components 20, 21 and of the label gripping devices 16 are coordinated with each other such that when the gripping devices 16, which bring along the label 13, are opened and at the same moment the label is grabbed by the nipper fingers 20, 21, before the nipper fingers swing out of the working region of the conveyor chains in order to apply the label onto the package 12. First then the nipper components 20, 21 open up in a manner that the pressing roll 27, lying on top of the label, presses the label onto the package 12.

If, however, simultaneously several labels should be produced and applied on the same package or on different packages, then several conveyor chain pairs can also be arranged next to each other according to Figures 6 and 7, together with each a corresponding number of pick-up arrangements which then work in unison such as it was described for a single-application machine according to Figures 1 to 5.

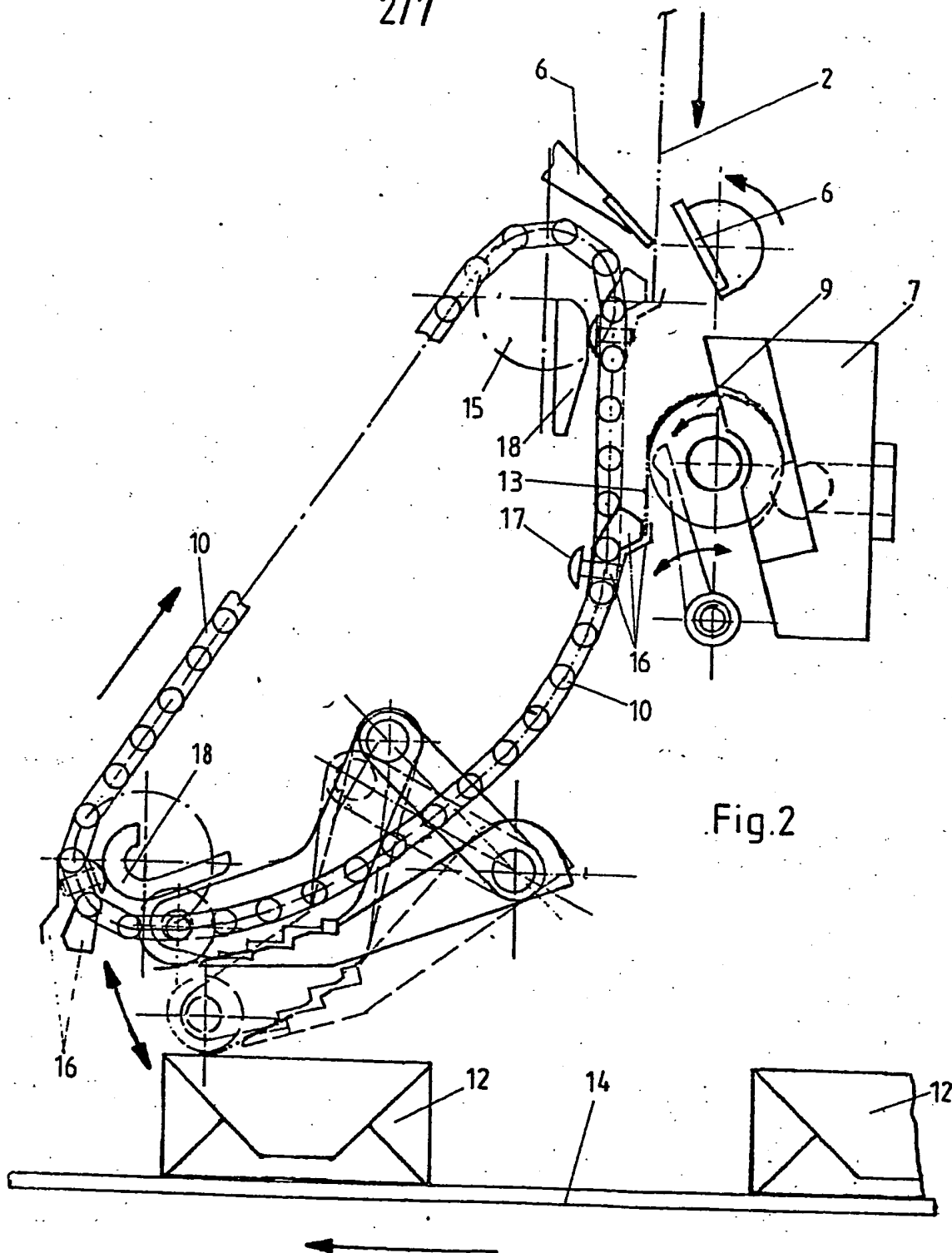
Fig. 1

The diagram illustrates a mechanical assembly, likely a printing press, with various components labeled 1 through 16. The assembly is shown in a side view, with a vertical shaft and a horizontal bar (11) at the bottom. The components include:

- 1: A large circular component at the top, possibly a flywheel or a large gear.
- 2: A small circular component, possibly a roller or a small gear, located near the top of the shaft.
- 3: A component on the left side of the shaft, possibly a roller or a guide.
- 4: A component on the left side of the shaft, possibly a roller or a guide.
- 5: A component on the right side of the shaft, possibly a roller or a guide.
- 6: A component on the right side of the shaft, possibly a roller or a guide.
- 7: A component on the right side of the shaft, possibly a roller or a guide.
- 8: A component on the right side of the shaft, possibly a roller or a guide.
- 9: A component on the right side of the shaft, possibly a roller or a guide.
- 10: A component on the right side of the shaft, possibly a roller or a guide.
- 11: A horizontal bar at the bottom, possibly a support or a guide.
- 12: A rectangular block at the bottom right, possibly a support or a guide.
- 13: A rectangular block at the bottom left, possibly a support or a guide.
- 14: A rectangular block at the bottom center, possibly a support or a guide.
- 15: A component on the left side of the shaft, possibly a roller or a guide.
- 16: A component on the left side of the shaft, possibly a roller or a guide.

Arrows indicate the direction of movement or rotation for several components, including the large circular component (1), the rollers (2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 16), and the horizontal bar (11).

2/7



3/7

Fig.3

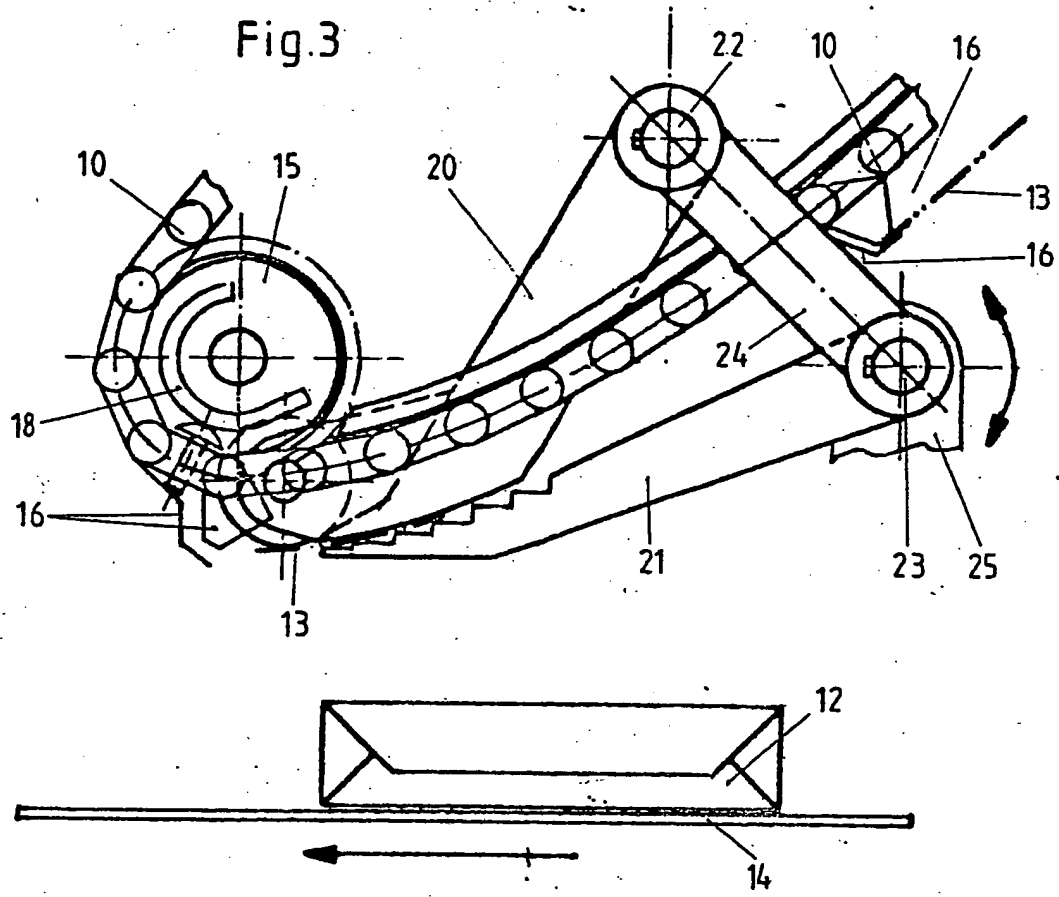
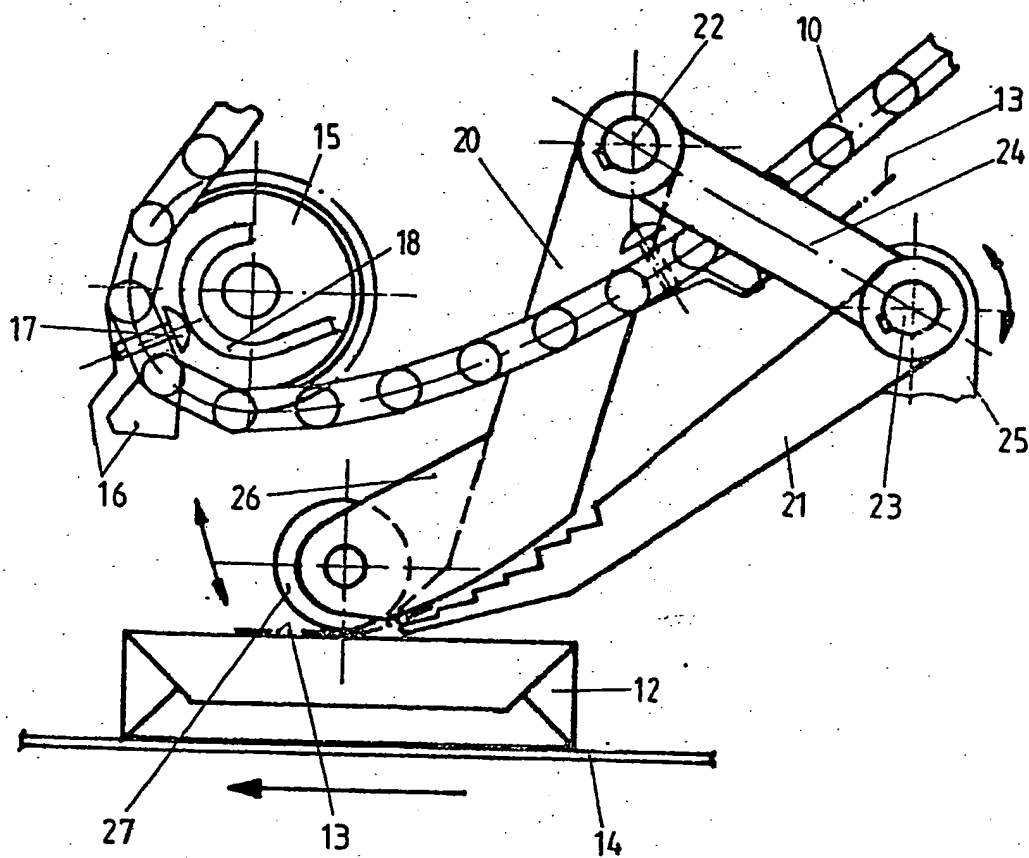


Fig. 4



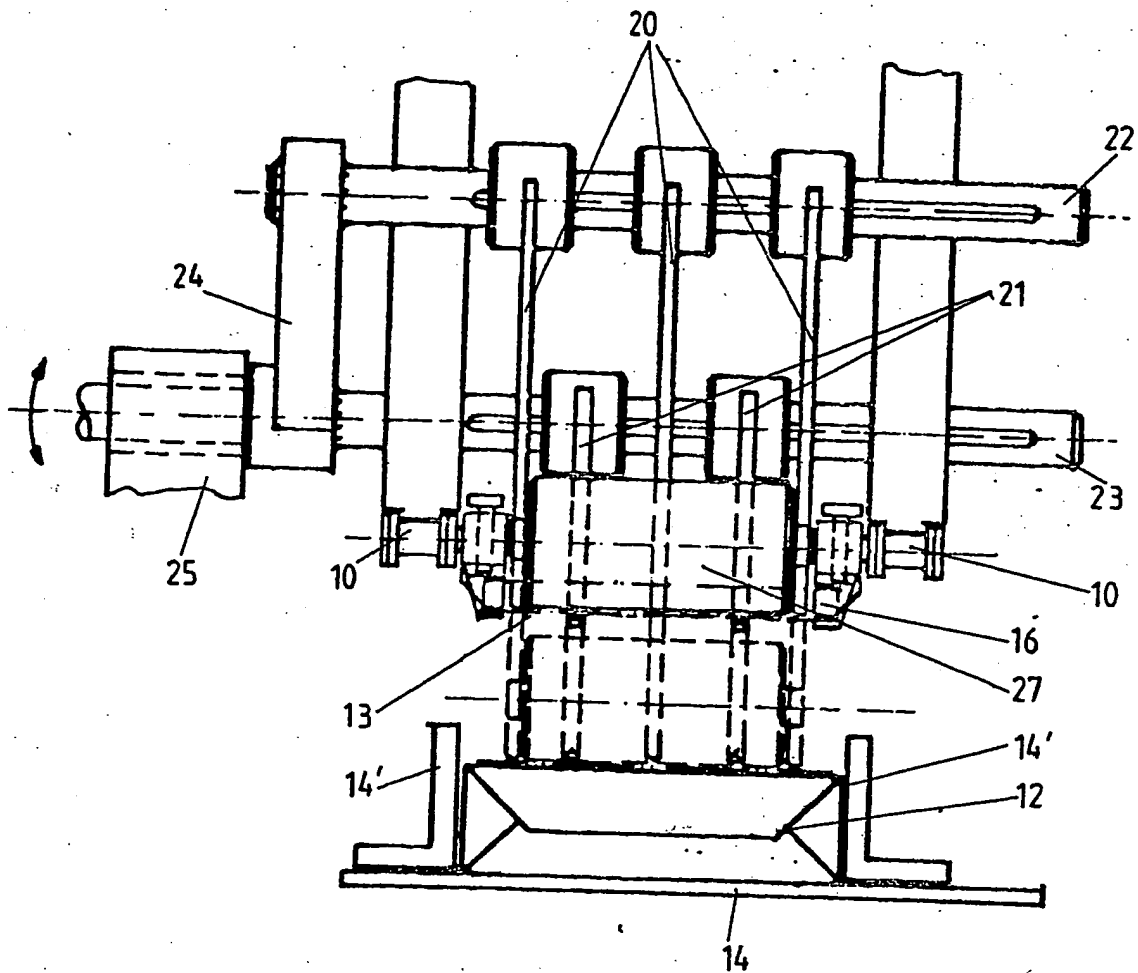


Fig. 5

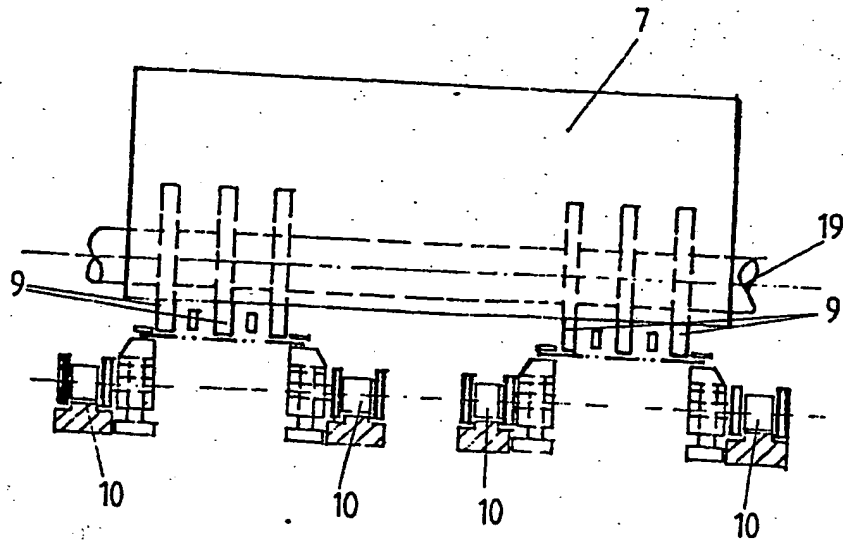


Fig. 6

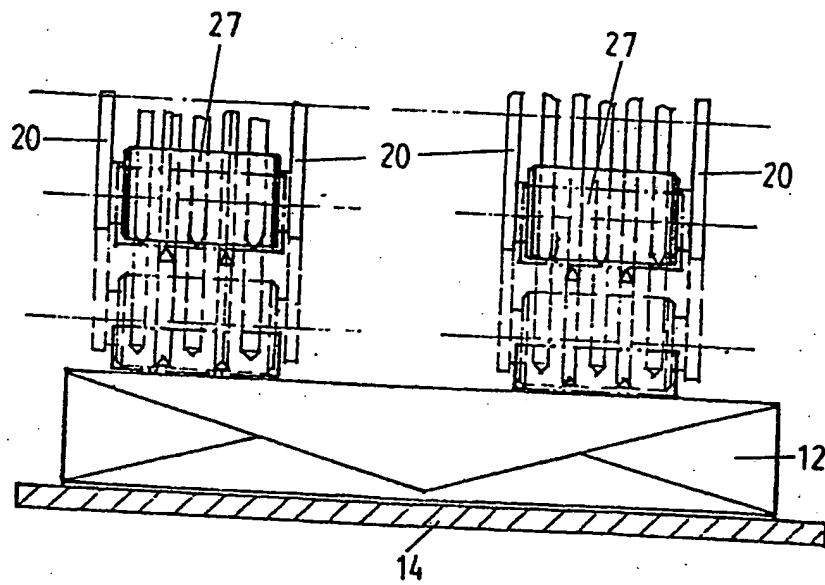
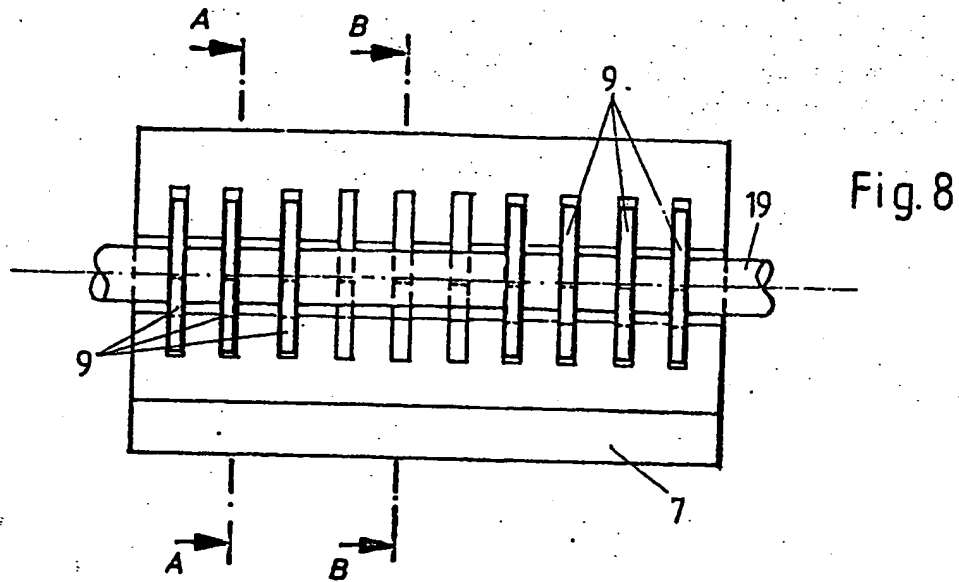


Fig. 7



Schnitt: A-A

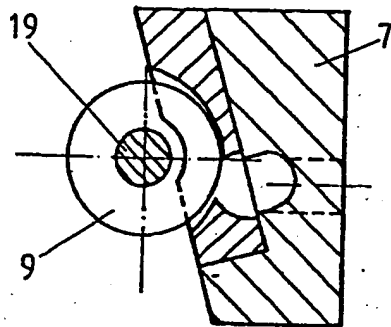


Fig. 9

Schnitt: B-B

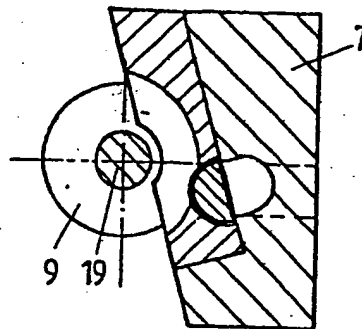


Fig. 10